

^{180}Hf β^- decay (5.53 h) 1985Ke02,1992Ke04

Type	Author	History
Full Evaluation	E. A. Mccutchan	Citation
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Parent: ^{180}Hf : E=1141.552 15; $J^\pi=8^-$; $T_{1/2}=5.53$ h 2; $Q(\beta^-)=-846$ 3; % β^- decay=0.31 8

1985Ke02: ^{180m}Hf activity from thermal neutrons on ^{179}Hf . Measured $E\gamma$, $I\gamma$, $\gamma\gamma$ using Ge(Li) detector surrounded by $4\pi\text{NaI}$ array used as a veto for high multiplicity γ cascades from ^{180m}Hf IT decay.

1992Ke04: Similar experimental setup as 1985Ke02. Included a Si surface-barrier detector for measuring $E\beta$, $I\beta$ and for vetoing conversion electrons from ^{180m}Hf IT decay.

A total energy release of 0.68 keV 21 is calculated for this decay scheme using the RADLST code, in agreement with the effective Q value of 0.9 keV 3.

α : Additional information 1.

 ^{180}Ta Levels

$E(\text{level})^\dagger$	$J^\pi{}^\ddagger$	$T_{1/2}{}^\dagger$
0.0	1^+	8.154 h 6
77.2 12	9^-	$>7.1 \times 10^{15}$ y
177.87 11	8^+	70.0 ns 14

† From the Adopted Levels.

 β^- radiations

$E(\text{decay})$	$E(\text{level})$	$I\beta^-{}^\ddagger$	$\text{Log } ft$	Comments
(118 3)	177.87	0.023 3	6.80 16	av $E\beta=30.93$ 83
(218 3)	77.2	0.29 8	6.53 19	$I\beta^-$: from absolute intensity of 100.7γ and $\alpha(100.7\gamma)$. av $E\beta=59.72$ 96 $I\beta^-$: measured value reported as 0.29 5, with an additional systematic uncertainty of 0.06 (1992Ke04). Other: <1.4 from earlier measurement in 1985Ke02.

† Absolute intensity per 100 decays.

 $\gamma(^{180}\text{Ta})$

$I\gamma$ normalization: As given in 1985Ke02 from experimental ratio of $I\gamma(100.7\gamma)$ to $I\gamma(93.3\gamma)$ in ^{180}Hf .

$E_\gamma{}^\ddagger$	$I_\gamma{}^\#$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. †	α	Comments
100.70 5	100	177.87	8^+	77.2	9^-	E1	0.360	$\alpha(K)=0.295$ 5; $\alpha(L)=0.0507$ 8; $\alpha(M)=0.01152$ 17; $\alpha(N+..)=0.00312$ 5

† From the Adopted Gammas.

‡ From 1985Ke02.

For absolute intensity per 100 decays, multiply by 1.7×10^{-4} 4.

$^{180}\text{Hf} \beta^-$ decay (5.53 h) 1985Ke02,1992Ke04Decay SchemeIntensities: $I_{(\gamma+ce)}$ per 100 parent decays